Before The

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of	)	
	)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51

COMMENTS OF

CostQuest Associates

CostQuest Associates ("CostQuest"), a world leader in economic network cost modeling and analysis, broadband mapping and assessment, and design of universal service funding systems and a founding member of the LinkAMERICA Alliance which represents a consortium of leading firms focused on the optimal use of the ARRA Broadband stimulus funds, submits these comments in response to the FCC's Notice of Inquiry seeking comment to inform the development of a national broadband plan for our country. CostQuest is a consulting organization that serves, in an unbiased manner, all modes of technology and carrier class. We have performed work for rural service providers, RBOC's, cable providers, mobile wireless carries, regulators and governments. Because of the breadth and depth of our experience, we believe we are uniquely positioned to comment on some aspects of the NOI. While it's tempting for us to comment on many issues and details that are unresolved, we will focus our response on a few key aspects.

We organize our brief comments into two sections: **Establishing Goals and Benchmarks, and Effective and Efficient Mechanisms for Ensuring Access**. In the first section we discuss what data should be gathered, analyzed and reported on. In the second section we discuss how these data should be used to further policy goals.

Establishing Goals and Benchmarks

Broadband Definition:

Working with a number of clients we have found one of the most complex issues is defining what Broadband is. What we find is that in the absence of a federal mandate or access to unlimited capital to deploy state of the art networks ubiquitously, Broadband appears to be

best defined based upon what broadband is to be used for. In other words a static definition based only upon speed is irrelevant to many consumers. Rather, benchmarks tied to local needs, which evolve over time, are more helpful.

Carefully consider the following examples. Our intent is not to define broadband for a particular type of person. Rather, the examples demonstrate how broadband is defined by the individual. There may be a suburbanite, who already has broadband service, who expects and defines broadband's minimum capability as the ability to watch streaming video and upload home pictures and videos. There could be a farmer, who only has access to dial-up defines broadband as the ability to have real time monitoring of markets in a more timely fashion. As such, broadband could be simply defined as – faster than dial-up, always on, web/e-mail access, and affordably priced. For those living in areas without adequate medical care, they may simply be seeking telehealth facilities that will be within a short drive of their house. And finally, a small business owner who moved 'back home' wants to grow her business but is reliant on the ability to quickly transport detailed building design files to a client around the world. Each person, in a different location, has a different definition of what broadband should be. Using a strict speed definition without links policy objectives and individuals needs and an in-depth understanding of the current marketplace (which does not yet fully exist), will most likely lead to frustration and confusion since it will not speak to the challenges we face.

While access to similar high speed services available to all should be a long term goal, the reality of the current marketplace is that a phased approach is more realistic. As such, we view the near term broadband definition as situationally dependent. In each of these situations, broadband is defined by what the user is seeking to do. Their location, their available speeds and quality of service standards are helpful, but they do not establish clear policy benchmarks that people understand.

To establish these benchmarks we suggest the consideration of the following criteria:

- ✓ Benchmarks should be tied to applications that use them. For example, if a State policy goal is to have video conferencing available to each citizen, then technology standards must support this benchmark. Many times it appears that we let the technology standard speak first, not the need of the Citizen.
- ✓ A situational, "experiential" tiered metric would be clearer to the typical consumer. For example, at a minimum it may be determined as a short term goal that simple ubiquitous access for basic use of the internet (web browsing and email) at affordable prices, while having access to broadband at speeds to support telehealth, education, backhaul/middle

mile should be available within a minimum distance from the consumers home so at least they have convenient access to the service.

- ✓ The tiered metric should adapt over time which recognizes consumer's improved understanding of the internet's capability and the technical expansion of the internet so that an achievable target is provided to push for continued expansion of the internet capabilities. For example, the initial goal may have been tele-health speeds at locations within a convenient distance from the consumer. Once achieved, the next goal could be tele-health capable speeds should be available at 90% of households by 2015. In effect, the adaptive approach is moving the bandwidth out at a realistic pace but providing interim access at community points in the interim.

- ✓ The tiered metric should be technology agnostic and focus on content that should be available to Americans and the policy objectives that are set out and discussed in the FCC's NOI starting at paragraph 63.

- ✓ Price of service should be considered, since affordability appears as important to a consumer's ability to access broadband as is network availability. In collecting information on broadband it is important to factor retail prices in so that a differentiation can be drawn between a lack of broadband service providers and a lack of broadband services at a price that can be afforded. These two problems will likely be addressed differently, so analysis should not confuse the two.

- ✓ As mobile technologies play an increasingly larger role in broadband deployment, understanding coverage within structures will become a key aspect of understanding broadband availability.

- ✓ A minimum capability, similar to lifeline service levels, should be considered.

Measuring Progress:

Recommendation:

As experts in the field of economic modeling and geospatial analysis, our ideal national collection and measurement effort would:

- ✓ Include broadband data that would be consistent with other sorts of publically available information. Although the collection and/or analysis may be done at a lower geographic

level, progress measures should always true up to Census geographies and statistics at a known point in time.

- ✓ Try to align the definitions of what is a customer, where they are and what they purchase with other comparable reporting programs. For example, this could include total customer count reporting for USAC fillings and broadband customer counts from FCC 477 filings. With this information in hand, along with demographic information at the census level and pricing and broadband availability, detailed analysis could take place to understand demand issues so that effective demand side programs could be implemented (and potentially funded).

- ✓ Explore moving to lower levels of Census geography. As the provider data most likely is machine geocoded for the current FCC 477 census track reporting, the benefit of driving the reporting to Census Block Group or Block levels should be revisited. By moving down to the Block or Block group level, many of the criticisms of the current 477 process could be taken care of. It would be helpful to also build a record on a carrier's success with accurately locating reported customers[1].

- ✓ Develop a periodic survey which ties to the tiered metrics described above. The surveyed questions should tie to what retail prices and counts are for eligible subscribers who can get a certain type of content…not solely a certain speed.

- ✓ Capture key infrastructure elements including: fiber nodes, electronic locations, towers, backhaul locations, points of interconnection, wired schools and libraries, etc.

- ✓ Include a national, annual survey on broadband that would capture information on broadband, broadband's use by consumers, barriers to adoption and deployment

Effective and Efficient Mechanisms for Ensuring Access

Market Mechanism

The current broadband environment is the result of market reactions to the economics of broadband and the implementation of patchwork market interventions from the federal, state

[1] What is being referred to here is a result code. The term will vary among geocoders but it is simply a measure of the confidence the geocoder provides back with a location. A geocoder will typically return a location for most addresses but what is helpful to understand is how much confidence the geocoder has in the returned location. Common terms may be a parcel or centroid level result, a block match or maybe even a ZIP centroid match.

and local governments. Private enterprise is naturally attracted to those areas where reward is high and risk is low - until the point in time when capital is limited and the reward does not cover the risk, or in many areas, where the reward is non-existent. It is in these high risk and/or low reward areas where market intervention may be required. In a review of various market intervention programs within the U.S. and around the world, we have found that:

- ✓ Collecting and disseminating information on demand, existing supply, and costs of expansion, is easily justified and likely critical to a successful program;
- ✓ The identification and elimination of regulatory hurdles, such as rights-of-way policies or tower permit issues, is important;
- ✓ Demand-side programs (including programs to expand computer literacy and internet subscription rates) are likely more cost effective than supply side initiatives at increasing broadband penetration;
- ✓ To the extent that supply-side incentives/subsidies are provided, they should be targeted to those marginal investments that would not have been made – this will require more detailed analysis of demand and costs;
- ✓ While there are guiding principles, and some actions that are likely to be more effective than others, there is no magic formula, and no simple solution – expanding broadband penetration likely requires multiple approaches, and significant effort and coordination.

With an understanding of the market interventions that have been used, we believe that there are economic modeling tools that can help manage, sustain, and maximize any market intervention with respect to the broadband services. Network rollouts that do not maximize benefit and that are not sustainable will only waste capital and frustrate consumers.

As such, the FCC, NTIA, RUS and States should consider using a Broadband Assessment Model (BAM) to evaluate a market and the utilization of grants/loans/funding programs. The BAM is simply an analytical approach and discipline that links broadband coverage information to other data sources. The assessment model should…

- ✓ Assist and enable the effective identification and communication of priorities (and expected benefits) to the emerging NTIA and RUS funding processes.
- ✓ Align and coordinate with corresponding mapping and demand analysis work – that is, the BAM is approached as an area specific analysis
- ✓ Develop comparable / relatable scores to understand the market, to prioritize the projects for funding so that the ARRA funds provide optimal benefit, and to assess sustainability. BAM's key measures should include at least:

- Supply Assessment
- Demand Assessment
- Consumer Survey
- Demographic Assessment
- Cost Assessment
- Revenue and Funding Assessment
- NPV (net present value) Assessment results for a schedule of cash flows (over time) for a particular defined potential broadband deployment area

From an ARRA perspective the BAM serves the broad goal established by the Obama administration that grants be awarded based on 'merit-based decision making'. An objective model will help assure intended benefits are clear (at the beginning) and realized (at the end) when coordinated with existing internal performance management processes.

Understanding Costs:

Key to understanding the economics of broadband and the need for market intervention is the construction of a business case. Integral parts of a business case are expected revenues and costs. In the prior section, we talked about the overall need for a Broadband Assessment Model (BAM) that would incorporate an NPV analysis. In this section we focus on the costs to serve.

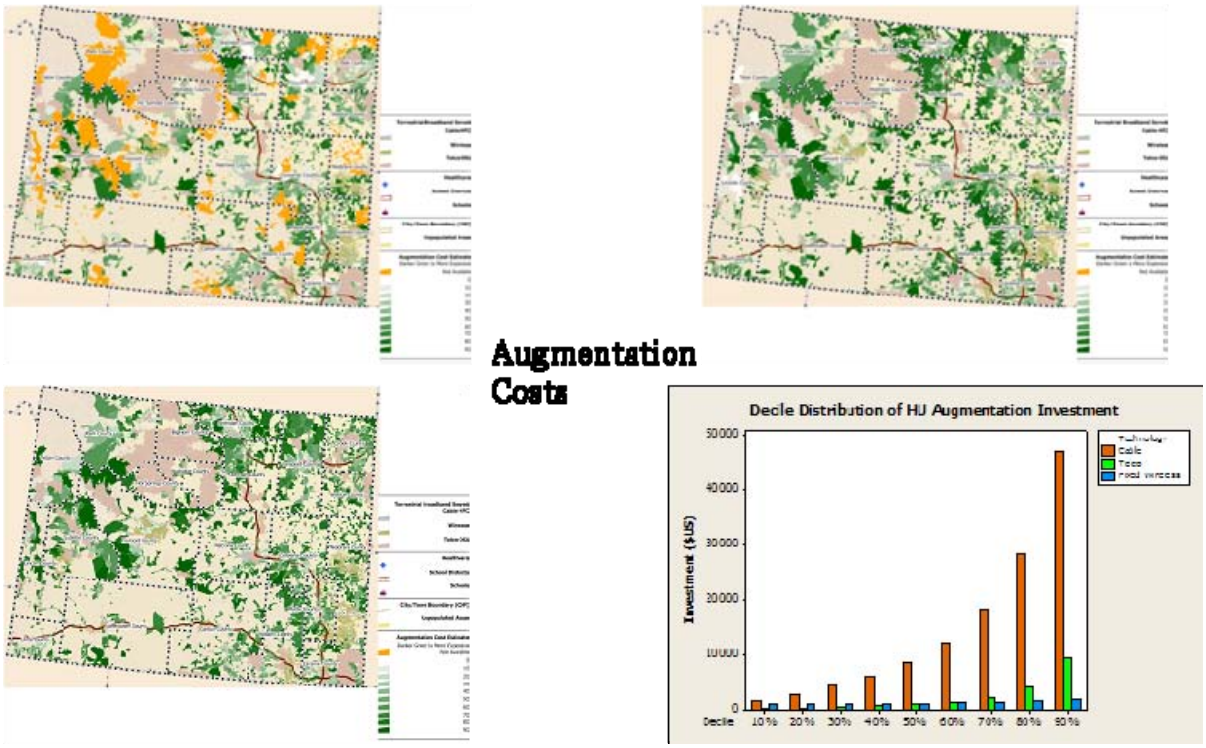
As leading experts in modeling broadband networks, we know that models exist that can help the FCC, NTIA, and RUS understand the cost to deploy broadband networks to the unserved and underserved areas of the country. These models provide an unbiased and systematic view of the marketplace that can help policy makers quickly understand the size of the issue and/or the impact of a potential approach. As such, optimal policy can be implemented in a timely fashion that incorporates information from multiple carriers, multiple technologies, and multiple potential approaches.

As CostQuest has commented in prior filings[2] , current modeling techniques have advanced so that accurate assessments of costs to deploy across multiple technologies can be developed. While the actual cost incurred will naturally differ, the economic cost models provide an unbiased and standardized view to assess competing technologies within a specific geographic area. For example, in rural areas with a density of 1 customer per square mile, the cost models may show that the cost to augment terrestrial wire-based networks are prohibitively expensive,

[2] See "Proposal for a Competitive and Efficient Universal Service High-Cost Approach" submitted by CostQuest Associates for CC Docket No. 96-45

while wireless or satellite solutions provide a more economically reasonable path. With this information in hand, effective policy can be set that maximizes the impact of limited stimulus funds.

In the state of Wyoming, we undertook a similar exercise to what is being contemplated here. In Wyoming, the state asked two questions: where are the broadband gaps, and in the gaps what would be the cost to augment existing facilities amongst various technology choices. CostQuest, using its industry leading model – CostPro, developed the cost to serve unserved areas by modeling the cost to augment existing telephone, cable and fixed wireless facilities. The cost development in Wyoming was performed at a granular level and rolled up to census areas. As such, the cost information could be tied to demographics (much like the discussion earlier in this paper). The Figure below demonstrates the findings of the study, which showed, by Census Block, where service, comparing multiple technologies, could be cost effectively augmented to provide a specific level of broadband service.



With this unbiased, standardized cost information in hand, policy makers were then able to make informed decisions. Without access to reliable cost information, policy makers are flying blind as they try to develop policy and incentives to address the broadband market.

Conclusion

In our reply comments to this NOI CostQuest could have attempted to answer the myriad questions and concerns expressed by the Commission. However, other NOI responders will likely develop colorful analogies to describe this complex path to developing a national broadband policy. It is our limited goal to make sure that whatever path is taken is informed by suitable data, insightful analysis and an unbiased assessment framework from which progress can be measured and judged.